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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/887,907 | 06/22/2001 | Charles Christian Birkner | | 7456 |
| 7590 | 05/10/2006 | | EXAMINER | |
| David F. Martinez, ATSER 1150 Richcrest Drive Houston, TX 77060 | | | STERRETT, JONATHAN G | |
| | | ART UNIT | PAPER NUMBER | |
| | | 3623 | | |

DATE MAILED: 05/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | |
|------------------------------|------------------------|---------------------|
| Office Action Summary | Application No. | Applicant(s) |
| | 09/887,907 | BIRKNER ET AL. |
| | Examiner | Art Unit |
| | Jonathan G. Sterrett | 3623 |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 03 March 2006.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-22 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All
 - b) Some *
 - c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

| | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Summary

1. This Office Action is responsive to applicant's amendment filed March 3, 2006.

Currently Claims 1-22 are pending.

Response to Amendment

2. The amendment filed March 3, 2006 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: the addition of 'real time' to Claim 1 describing the collection of construction quality data from the field. The specification discusses the application of HotSyncing the handheld device. Hot Syncing is not real time. Furthermore, when the collection of data happens in the field through entry into the handheld computer by the construction personnel, the collection of this data lags the event being documented such that the collection does not occur in real time. Real-time, as cited by the claim, means that the data is entered into the handheld computer as the construction quality event is occurring, i.e. in real time. The specification describes the manual entering of construction data in the field to document what has happened at some point after the referenced event occurs. The examiner realizes that entering data into a handheld computer may occur very soon after the event occurs. However, this does not mean nor constitute the limitation of "real time".

Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 1-22** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Norand's Pen-Key handheld computer (Norand)** in view of **Coble** and further in view of Brown US 5,923,552 (hereinafter **Brown**).

Coble, Dr. Richard J; Qu, Tan; Sun, Wei; "Multimedia Communications for Construction Foremen", 1998, AACE International Transactions, pp.1-5.

Norand's Pen-Key handheld computer is described in the following documents:

"Norand-Payback", February 6, 1998, Norand.com, pp.1-5,
web.archive.org/web/19980206121604/www.norand.com/payback/pay_retn.html,
hereafter referred to as **Reference U1**.

"Norand – Products", February 6, 1998, Norand.com, pp.1-2,
web.archive.org/web/19980206114724/www.norand.com/6622.html, hereafter referred to as **Reference V1**.

"Norand – Payback", February 6, 1998, Norand.com, pp.1-2,
web.archive.org/web/19980206121550/www.norand.com/payback/pay_intro.html,
hereafter referred to as **Reference W1**.

Wood, Michael, "Fighting the paperwork nemesis", March 1996, American Gas
v78n2, pp.32-33, hereafter referred to as **Reference X1**.

"Norand – Training", February 6, 1998, Norand.com, pp.1-2,
web.archive.org/web/19980206120946/www.norand.com/sup_ti_descrip_MS.html,
hereafter referred to as **Reference U2**.

"Powering better customer service. (Boston Edison implements mobile
computing solution)(Company Operations)", May 1997, Communications News, v34, n5,
p50, Dialog 02070908 19414033, hereafter referred to as **Reference V2**.

Regarding **Claim 1**, Norand teaches:

**a handheld computer adapted to collect real-time construction quality data
from the field;**

Reference X1 page 2 paragraph 3 line 1-3, Norand Pen*Key handheld
computers are used in the field.

Reference X1 page 2 paragraph 3 line 9-10, inspection reports (i.e. construction
quality data) from the field are collected in real time by Norand system.

a planning system to track budgetary information;

Reference X1 page 3 paragraph 2 line 2-4, time and materials for construction
contractors (i.e. budgetary information) is tracked by the Norand system.

a construction system to track material consumption and progress for each project,

Reference X1 page 2 paragraph 3 line 7-10, project information and time sheets for employees tracked by system.

the construction system adapted to receive quality data collected from the handheld computer,

Reference X1 page 2 paragraph 3 line 9-10, inspection reports (i.e. construction quality data) from the field are collected by Norand system –see line 3-4, this information is uploaded to the mainframe (i.e. construction system).

store daily project reports

Reference X1 page 2 paragraph 3 line 8-10, forms (i.e. reports) are used to store information that was previously hand written. These forms include daily time sheets and project information (i.e. daily project reports).

and generate key indicator reports

Reference U1 page 4 paragraph 11 line 1-3, reports collected from data entered into the system can be generated of any key indicators regarding worker performance.

Norand does not teach:

a design system to perform site engineering assessment;

Coble teaches:

a design system to process site engineering assessment data including

Design Audit of engineering calculations;

Page 4 paragraph 1 line 5-7, handheld system incorporates computer aided design (CAD) drawings to record construction activities (i.e. design audit of engineering calculations).

Page 4 paragraph 1 line 12-15, construction activities can be assessed and recorded using computer aided design (CAD) system.

(The examiner notes that the data list of "Utility, Conflict and Relocation....Design Audit of Engineering Calculations" is considered non-functional descriptive material since the data as claimed does not add patentable structure to the claim. The design system is only processing data including the above elements. The elements as listed do not structurally change how the design system is processing them.)

Both Coble and Norand disclose providing wireless mobile computing capability to field workers, thus both Coble and Norand are analogous art.

Coble teaches that providing construction crews in the field with mobile wireless devices improves their productivity (Page 3 paragraph 2 line 1-2).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Norand, regarding providing field workers with

mobile computers, with providing mobile workers with the capability of providing site engineering assessments, as taught by Coble, because it would improve the productivity of construction workers at the job sites.

Coble further teaches of the need to connect the construction foreman, who is responsible for the onsite documentation and management of a project, with the project engineer, who receives design plans from the project architect (see Figure 2). Furthermore, Coble teaches the need to apply project management techniques to manage the construction projects (page 4 para 1 line 7, project management tasks in the field are recorded as being completed). Coble teaches that plans are received from the architect by the project manager (i.e. who applies project management).

Cobles teachings address the use of automation (i.e. a handheld wireless device) in the field by construction foreman to record activities that ensure a project is on track and provide the necessary documentation supporting the project management of construction activities. Coble also teaches that updates from the construction foreman are connected to a design system so that drawings reflect what is built.

While Coble does not teach a planning system per se, he acknowledges the need to connect the handheld computer in the field, which records information that is updated to the design system (e.g. recording as-builts). Coble also teaches the need

to connect project management with the project design function (See Figure 2, the project management function is connected to the project architect function).

It is old and well known in the art of construction project management to perform predesign of programs containing a number projects, i.e., to create plans of projects, subprojects and tasks before activity is actually commenced. Brown teaches such a system.

Specifically, Brown teaches a planning system to perform predesign of a program having a plurality of projects (column 9 line 45-50). Brown teaches that his planning system may be connected to various industry specific systems (column 5 line 59-64).

It would be therefore obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Coble and Norand, regarding connecting a handheld computer in the field to upload construction information, to include the step of connecting the design system taught by Coble to a planning system to perform predesign because it would provide the project management necessary to successfully administer a construction project.

Regarding **Claim 2**, Norand, Coble and Brown teach all the limitations of Claim 1 above, and Norand also teaches:

wherein the handheld computer collects work-in-progress data.

Reference X1 page 3 paragraph 2 line 4-5, work in progress data is collected by Norand's handheld computer.

Regarding **Claim 3**, Norand, Coble and Brown teach all the limitations of Claim 1 above, and Norand also teaches

wherein the handheld computer collects project and contract identification,

Reference X1 page 3 paragraph 2 line 4-5, contractor (i.e. contract identification) data is collected by Norand's handheld computer.

Reference X1 page 2 paragraph 3 line 9, contract information is collected by handheld computer.

inspector identification,

Reference X1 page 2 paragraph 3 line 9-10, inspection reports can be inputted into the Norand computer. An inspection report contains information about what was inspected, and also contains who was performing the inspection.

Norand does not teach:

wherein the handheld computer collects item number, location, and one or more description of activities.

Coble teaches:

wherein the handheld computer collects item number, location, and one or more description of activities

Page 3 Figure 3 – This form contains Unit No (i.e. item number) and description of activities (e.g. checklists for pouring concrete – formwork) as well as one description of activities “Pour Check Out Sheet” describing the pouring of concrete.

Page 4 paragraph 1 line 11-15, activities related to change notices are described – see also Figure 4.

Both Coble and Norand disclose providing wireless mobile computing capability to field workers, thus both Coble and Norand are analogous art.

Coble teaches that providing construction crews in the field with mobile wireless devices improves their productivity (Page 3 paragraph 2 line 1-2).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Norand, Coble and Brown, regarding providing field workers with mobile computers, with providing mobile workers with the ability of the handheld computer to collect item number, location, and one or more description of activities, as taught by Coble, because it would improve the productivity of construction workers at the job sites.

Regarding **Claim 4**, Norand, Coble and Brown teach all the limitations of Claim 1 above, and Norand also teaches:

wherein the handheld computer collects labor related information.

Reference X1 page 2 paragraph 3 line 8, daily time sheets (i.e. labor related information) are collected by Norand's handheld computer.

Regarding **Claim 5**, Norand, Coble and Brown teach all the limitations of Claim 1 above, and Norand also teaches:

wherein the handheld computer collects labor type, quantity and hours.

Reference U1 page 4 paragraph 9 line 1-8, Norand's computer records the driver time associated with a particular truck (i.e. labor type) and the number of hours a driver works.

Reference U1 page 4 paragraph 11 line 1-3, information on delivery information (i.e. quantity of goods delivered) is collected by the handheld computer.

Regarding **Claim 6**, Norand, Coble and Brown teach all the limitations of Claim 1 above, and Norand also teaches:

wherein the handheld computer collects equipment information.

Reference U1 page 4 paragraph 9 line 4-5, the driver enters their truck number (i.e. equipment information) into the handheld computer.

Regarding **Claim 7**, Norand, Coble and Brown teach all the limitations of Claim 1 above, and Norand also teaches:

wherein the handheld computer collects equipment type,

Reference U1 page 4 paragraph 9 line 4-5, the driver enters their truck number, (i.e. equipment type).

quantity,

Reference U1 page 3 paragraph 3 line 1-3 & paragraph 4 line 1-4, bill of lading document information is entered into the computer. The bill of lading contains quantity information.

hours in use,

Reference U1 page 2 paragraph 2 line 1-4, The hours in use of a truck is recorded, since the time stamp for each stop is recorded. Thus at the end of the day, the total time a truck was being driven as well as stop time is recorded.

and stand-by hours.

Reference U1 page 2 paragraph 2 line 3-4, standby time is recorded when a driver arrives or leaves or leaves at a stop. This time is recorded in hours and minutes for proof of delivery to a customer.

Regarding **Claim 8**, Norand, Coble and Brown teach all the limitations of Claim 1 above, and Norand also teaches:

wherein the handheld computer collects submittal information.

Reference X1 page 3 paragraph 1 line 4-5, submittal information is collected by the handheld computer and can be printed off to provide documentation that can be submitted to comply with regulations.

Regarding **Claim 9**, Norand, Coble and Brown teach all the limitations of Claim 1 above, and Norand also teaches:

wherein the handheld computer collects weather condition, comments, and an inspector name.

Reference X1 page 2 paragraph 3 line 9-10, inspection reports would include an inspector's name and comments.

Norand also teaches the completion of daily work forms on the computer where they had previous been done by hand.

Reference X2 page 2 paragraph 1 line 1-3, daily work forms were automated by the Norand wireless handheld system.

Norand does not teach:

wherein the handheld computer collects weather condition.

Coble teaches the use of handheld wireless computers to automate the entry of daily data by construction foremen, including adding comments about daily problems

(Page 3 paragraph 7 line 3-4, short descriptions of daily construction-related problems entered).

Both Coble and Norand disclose providing wireless mobile computing capability to field workers, thus both Coble and Norand are analogous art.

Coble teaches that providing construction crews in the field with mobile wireless devices improves their productivity (Page 3 paragraph 2 line 1-2).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Norand, Coble and Brown, regarding providing field workers with mobile computers, with providing mobile workers with the ability of the handheld computer to collect short descriptions of daily construction related problems, as taught by Coble, because it would improve the productivity of construction workers at the job sites.

Norand, Coble and Brown do not teach where weather information is collected by the handheld computer.

Official Notice is taken that it is old and well known in the art for weather to have an impact on construction projects, including to cause delays due to weather-related problems. Weather delays are known to impact a construction schedule and are

tracked so that progress against a deadline can take into weather delays and be more accurate in estimating the completion timing.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the collective teachings of Norand, Coble and Brown, regarding providing handheld computers that automate the entering and collection of daily report data, to include the step of entering weather data, because it would improve the scheduling process for construction projects by automatically tracking weather-related impacts on schedule.

Regarding **Claim 10**, Norand, Coble and Brown teach all the limitations of Claim 1 above, and Norand also teaches:

wherein the handheld computer hot-syncs collected information to a server.

Reference U2 page 2 paragraph 4 line 5, Norand uses a Nor*Ware 6920 Communications Server for communication with units in the field. This unit receives information from the handheld unit in the field.

Reference W1 page 1 paragraph 9 line 6-10, every time a driver enters information into his handheld computer, the information is hot-synced back to the wireless LAN.

Regarding **Claim 11**, Norand teaches all the limitations of Claim 10 above, and Norand also teaches:

wherein the collected information is hot-synced wirelessly using a wireless handheld unit.

Reference W1 page 1 paragraph 9 line 6-10, every time a driver enters information into his handheld computer, the information is hot-synced back to the wireless LAN.

Regarding **Claim 12**, Norand teaches all the limitations of Claim 10 above, and Norand also teaches:

a modem coupled to the handheld computer, wherein the information can be hot-synced using a modem.

Reference W1 page 1 paragraph 9 line 6-10, every time a driver enters information into his handheld computer, the information is hot-synced back to the wireless LAN.

Reference V1 page 1 paragraph 7 line 2, the Norand computer can use fax-modem cards.

Regarding **Claim 13**, Norand teaches all the limitations of Claim 10 above, and Norand also teaches:

a hot-sync cradle coupleable to the handheld computer, the cradle hot-syncing the collected information for transmission to a server.

Reference W1 page 2 paragraph 1 line 3-5, driver can put the handheld computer in a cradle in a truck for hot-syncing the collected information for transmission to a server.

Reference U2 page 2 paragraph 4 line 5, Norand uses a Nor*Ware 6920 Communications Server for communication with units in the field. This unit receives information from the handheld unit in the field.

Claims 14-22 recite similar limitations as those recited in **Claims 1-13** above, and are therefore rejected under the same rationale.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Laiserin, Jerry, FAIA; "New tech tools for diverse practice", Sept 2000, Architectural Record, New York, Vol. 188, Iss. 9, p.193, ProQuest ID 61722314.

Hernandez, Thomas Jr; "Mobile CAD goes on site", Sept 2000, Building Design & Construction, Vol 41, Iss. 9 pg 19, ProQuest ID 60010308.

Barnes, Scottie; "Mine your map data", Sept 2000, CADalyst, 17, 9; ProQuest Computing, p.66.

Drake, Bob; "Off-the-shelf software to enhance efficiency", July 1999, Rock Products, 102, 7; Research Library p. 54.

Katzel, Jerome; "Mobile data collecting: Power in the palm of your hand", Sep 2000, Plant Engineering, 54, 9; ABI/INFORM Global, p.50.

Pitts, Marilyn; "Check out the latest technology", June 2001, Reeves Journal; 81, 6, ABI/INFORM Global, p.22.

Examiner Comment

The use of non-functional descriptive material was noted in Claim 1. The examiner would contrast the following limitations with the nonfunctional descriptive material used in Claim 1 above:

**"a design system to process site engineering assessment data including:
a design audit of engineering calculations to sign off on and correct the engineering calculations;
a geo-technical investigation to validate preliminary geological assumptions upon which the engineering design and architectural drawings are based;
an archeological investigation to verify that no archeological concerns exist affecting construction project scope;**

planning of multi-project coordination at the same work location to determine a critical path workplan for the overall construction project, including all subprojects”

These limitations are cited by way of example and are not meant to substitute for applicant's invention nor to imply patentability of the invention or these limitations.

The examiner would further point out that the limitation “a planning system coupled to the design system to perform pre-design of a program having a plurality of projects” is broadly written.

Similar to the above example, the examiner respectfully suggests incorporating from the specification into the claim limitations elements that comprise “pre-design”.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan G. Sterrett whose telephone number is 571-272-6881. The examiner can normally be reached on 8-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tariq Hafiz can be reached on 571-272-6729. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

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published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



JGS 5-10-2006



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